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No. 95-728

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In the Supreme Court of the United States

OCTOBER TERM, 1995

WARNER-JENKINSON COMPANY, INC., PETITIONER

v.

HILTON DAVIS CHEMICAL CO.

ON WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

**BRIEF FOR THE UNITED STATES
AS AMICUS CURIAE**

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QUESTION PRESENTED

Whether the equitable doctrine of equivalents in patent infringement litigation should be limited to situations in which the patent holder shows (1) that the differences between the elements of the accused device and the patent claims are insubstantial, and (2) that there are no equitable considerations that would preclude application of the doctrine.

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INTEREST OF THE UNITED STATES

Under the equitable doctrine of equivalents, a product or process that does not literally infringe a patent, because it has elements that differ from those specified in the patent claim limitations, may nonetheless be held to infringe if the differences are insubstantial. The United States has an interest in the preservation of a predictable, clearly defined, and consistently administered doctrine of equivalents, to assure that patents provide meaningful scope of protection but are also properly confined to the scope of the claimed invention. The public is thereby assured notice of the limits of exclusionary rights conferred by existing patents, while competition and innovation are fostered. The United States accordingly seeks to encourage foreign nations that provide patents under their own laws to United States citizens and corporations

to afford patent protection commensurate with that provided in the United States by the doctrine of equivalents.

STATEMENT

Respondent claimed that petitioner did not literally infringe its patent, but infringed under the doctrine of equivalents. The jury applied the doctrine, found infringement and, determining that the infringement was not willful, awarded 20% of respondent's requested damages. The district court entered judgment accordingly, and enjoined petitioner from using the patented process. On appeal, the court of appeals *en banc* considered the issue of infringement, and, voting 7-5, affirmed in a per curiam opinion. The *en banc* court assigned the issue of patent validity to a panel, which affirmed per curiam. Petitioner challenges only the judgment of the *en banc* court affirming the infringement determination under the doctrine of equivalents.

1. Both parties manufacture dyes for use in food, drugs and cosmetics. The companies must remove by-products in their dyes in order to meet federal food and drug standards. They have traditionally done so by an expensive and environmentally burdensome process known as "salting out," involving adding salt to the reaction solution of a dye to crystallize the dye, which then may be filtered from the remaining solution to remove impurities.

In 1985, however, respondent obtained patent No. 4,560,746 (the '746 patent) on an alternative dye purification process involving ultrafiltration. Pet. App. 2a-3a, 154a-155a. The '746 ultrafiltration process uses osmosis to separate the impurities from the dye by drawing the impurities through a membrane at certain pressures, pH levels, and membrane pore sizes, leaving a high purity dye. Respondent's process operated under a hydrostatic

pressure of approximately 200 to 400 pounds per square inch gage (p.s.i.g.) and at a pH from approximately 6.0 to 9.0. Pet. App. 2a-3a, 157a-159a.

Meanwhile, by 1986, petitioner had developed a successful ultrafiltration process operating at pressures from 200 to nearly 500 p.s.i.g. and a pH of 5.0, and was using that process commercially. Pet. App. 4a-5a. Petitioner did not learn until October 1986 that in 1985 respondent had obtained the '746 patent. Claim 1 of the '746 patent describes the improvement as:

subjecting an aqueous solution . . . to ultrafiltration [1] through a membrane having a nominal pore diameter of 5-15 Angstroms [2] under a hydrostatic pressure of approximately 200 to 400 p.s.i.g., [3] at a pH from approximately 6.0 to 9.0, to thereby cause separation of said impurities from said dye, said impurities of a molecular size smaller than the nominal pore diameter passing [through] said membrane and said dye remaining in the concentrate.

See *id.* at 3a-4a. The inventors added the phrase "at a pH from approximately 6.0 to 9.0" in response to objections from the Patent and Trademark Office (PTO), in order to distinguish the preexisting Booth Patent, which operates at a pH above 9.0 and preferably between 11.0 and 13.0. *Id.* at 4a.

Respondent sued petitioner for patent infringement in 1991. Following a nine-day jury trial, judgment was entered in respondent's favor. Pet. App. 5a.

2. The *en banc* court of appeals affirmed. Pet. App. 1a-152a. After a Federal Circuit panel had heard oral argument but before it issued a decision, the *en banc* court decided to rehear the issues relating to infringement under the doctrine of equivalents. The court asked the parties to brief the nature of the proof

required under the doctrine, whether the doctrine is a jury question or an equitable remedy to be decided by the court, and whether, if the court decides the question, application of the doctrine is discretionary. *Id.* at 5a-6a.

The *en banc* court held that "the application of the doctrine of equivalents rests on the substantiality of the differences between the claimed and accused products or processes, assessed according to an objective standard." Pet. App. 9a. Because the standard is an objective one, "[i]ntent is not an element of infringement" under the doctrine, although "[p]roof of bad faith by an infringer may entitle the patent owner to enhanced damages and attorney fees for willful infringement under 35 U.S.C. §§ 284-285 (1988)." *Id.* at 12a.

The court noted that it had often measured the insubstantiality of the differences between the claimed and the accused product or process by "the so-called triple identity, or function-way-result, test." Pet. App. 8a. Under that test, "one device is an infringement of another 'if it performs substantially the same function in substantially the same way to obtain the same result.'" *Id.* at 9a (quoting *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929)). The court held, however, that factors other than function, way and result may also be relevant to show insubstantiality. *Id.* at 10a-14a, 17a. For example, if a person reasonably skilled in the art would have known at the time of infringement that an accused element was interchangeable with a claimed element, the court viewed such interchangeability as "potent evidence" that the difference between the two elements was insubstantial. *Id.* at 11a. The court concluded that "[e]vidence of copying is also relevant," despite the irrelevance of a copyist's subjective intent, because "[w]hen an attempt to copy occurs, the fact-finder may infer that the copyist, presumably one of some skill in the art, has

made a fair copy, with only insubstantial changes." *Ibid.* Evidence of "designing around" the patent claims is also relevant, in the court's view, because "the fact-finder may infer that the competitor, presumably one of skill in the art, has designed substantial changes into the new product to avoid infringement." *Id.* at 13a. The court believed that evidence of independent development is not relevant, however, because, "[w]ithout knowledge, the independent developer could not have set out to make its product or process either similar to or different from the claimed invention," and, given that intent is not a factor, "independent development does not excuse infringement of the patent owner's right to exclude." *Id.* at 13a-14a.

The court further held that "infringement under the doctrine of equivalents is an issue of fact to be submitted to the jury in a jury trial with proper instructions, and to be decided by the judge in a bench trial." Pet. App. 17a. That conclusion followed from the court's observation that this Court has described application of the doctrine as a question of fact. *Id.* at 14a-16a. The court of appeals noted that this Court also has characterized the doctrine as "equitable," but rejected the suggestion that, in using that label, the Court was referring to "equity in the technical sense"—a traditionally non-jury function—because, in the court of appeals' view, "equity" in this context has been used to refer only to "equity as general fairness." *Id.* at 16a. Because it believed the doctrine is not equitable in the traditional sense, the court concluded that "[t]he trial judge does not have discretion to choose whether to apply the doctrine." *Id.* at 18a.

Applying its analysis, the court determined that the jury instructions were not erroneous, and that substantial evidence supported the verdict. Pet. App. 18a-25a. The district court instructed the jury on the doctrine of

equivalents in terms of function, way and result, and did not invite it to consider other factors, but, because the parties argued the case in those terms and did not present other relevant evidence, the court of appeals held that the instructions were not overly narrow as applied to this case. *Id.* at 19a-21a.¹ The court also concluded that substantial evidence showed that the difference between petitioner's use of a pH of 5.0 and respondent's claimed pH range of 6.0-9.0 was insubstantial, that petitioner sometimes employed pressures in the claimed range of 200-400 p.s.i.g., and that even use of higher pressures "performed the same function—forcing the solution through the membrane—in an equivalent way, to achieve the same result." *Id.* at 23a-24a. Finally, the court held that prosecution history estoppel did not preclude application of the doctrine of equivalents. *Id.* at 24a. The inventors amended their claims to limit them to a pH from approximately 6.0-9.0 in order to avoid infringing the Booth patent, which claimed operation at pHs higher than 9.0; "[t]his amendment surrendered pHs above 9, but does not bar Hilton Davis from asserting equivalency to processes such as Warner-Jenkinson's operating sometimes at a pH below 6." *Ibid.*

In a concurring opinion, Judge Newman stressed the substantial role of technologic innovation in national economic development, and the security that patents provide for commercial investment in innovation. Pet. App. 34a-35a. She also noted the countervailing factor that "technologic growth benefits not only from the activities of the originators, but also from those who improve, enlarge, and challenge." *Id.* at 39a. She observed that, in the absence of the doctrine, patent protection may be so

¹ The court also noted that petitioner did not object to the relevant jury instruction. Pet. App. 21a.

narrow that "the advantages to imitation (as compared to innovation) become sufficiently large that erstwhile innovators will simply wait for something to imitate." *Id.* at 42a. If, however, "minor improvements are likely to be captured by the doctrine of equivalents," major, or "leapfrogging," technologic advances will be encouraged over "minor improvements and substantial imitation." *Id.* at 41a. The doctrine thus promotes "a fairer, less technocratic, more practical patent system; one that is oriented toward encouraging technologic innovation and discouraging free riding." *Id.* at 44a. The doctrine must, however, be reasonably predictable if it is to serve its purposes, and Judge Newman concluded that the court's decision "does not answer the difficult question of improving the predictability and reducing the uncertainty of technologic decisionmaking." *Id.* at 48a.

Judge Plager dissented in an opinion joined by Chief Judge Archer and Judges Rich and Lourie. Pet. App. 51a-69a. In Judge Plager's view, "[t]he majority opinion correctly recognizes the notion of protecting legal rights by extending a flexible remedy when the difference between the protected rights of the patentee and the product of the infringer is insubstantial," but "the majority fails to acknowledge—indeed, denies—the equitable source of that remedy." *Id.* at 61a; see also *id.* at 52a ("the doctrine has its roots in a court's traditional equity powers"). In his view, infringement generally should be determined by the literal terms of the claim, and the doctrine of equivalents should apply only "in those special cases in which the competitor's product is literally different but the difference is so insubstantial as to constitute a 'fraud on the patent.'" *Id.* at 59a. He emphasized that the doctrine must have "clear and reviewable boundaries * * * lest the power inherent in the doctrine of equivalents destroy the reliance on the

scope of claims to which every competitor is entitled." *Id.* at 60a. As it has been applied by juries, however, he believes the doctrine of equivalents has afforded "virtually uncontrolled and unreviewable license" to find infringement. *Id.* at 55a.

Judge Lourie also filed a dissenting opinion, in which Judges Rich and Plager joined. Pet. App. 70a-81a. Because Judge Lourie believed that the jury instructions were erroneous even under the majority's analysis, he would have remanded for a new trial. *Id.* at 70a-71a. He agreed with the majority that the function-way-result test is not the exclusive measure of equivalency. *Id.* at 71a-74a. He disagreed, however, that all other factors are subsumed within the determination of insubstantiality. *Id.* at 74a-75a. In his view, intent is also relevant to applicability of the doctrine, *id.* at 75a-78a, differentiating a "pirate" from one "who unintentionally happens to come close to the claims of a patent," *id.* at 77a. He also urged that the pioneering status of an invention should affect application of the doctrine: "Pioneers should be given more scope of protection than inventors in a crowded art." *Id.* at 78a.

Judge Nies also filed a dissenting opinion, in which Chief Judge Archer joined in part. Pet. App. 82a-152a. Although Judge Nies believed the doctrine of equivalents was incompatible with the express terms of Sections 112 ¶ 6 and 251-252 of the Patent Act, she accepted that it "continues to be viable." Pet. App. 104a. In her view, "[t]he meaning of the words in the claim must be defined by the court, a question of law. Also, the scope of protection which may be given the claim beyond its words is a question of law. In addition, the accused product or process must meet the limitations of the claim as defined by the court either literally or by equivalent means or steps, questions of fact." *Id.* at 82a.

Judge Nies faulted the majority for eliminating what she believed are important safeguards in the doctrine. She identified four limitations: First, equivalence must be limited to what was known to those skilled in the art as an equivalent substitute at the time the patent issued. Pet. App. 126a-130a. Second, it must be limited by prosecution history estoppel. *Id.* at 130a-131a. Third, "a claim to a product or process cannot be construed to encompass the same or substantially the same *overall* product or process in the prior art." *Id.* at 131a. Finally, it must not enlarge a claim; enlargement is avoided if the doctrine applies only to each element of a claim, rather than to the invention as whole. *Id.* at 131a-136a. Judge Nies would have directed a verdict for petitioner in this case, because, in view of petitioner's use of pHs and pressure levels outside the ranges claimed in the patent, any other result would require enlargement of the patent. *Id.* at 146a-152a.

SUMMARY OF ARGUMENT

The doctrine of equivalents is an equitable, extra-statutory theory of patent infringement that plays a useful role in protecting patentees from imitation of their inventions. The Patent Act seeks to balance competing concerns by protecting novel and useful inventions, while making such inventions publicly known and encouraging further competition in innovation. If the doctrine of equivalents is clearly defined, and employed in a manner consistent with the express requirements of the Patent Act, it helps to strike that balance.

As this Court has recognized, outright duplication of a patented invention is rare. *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 607 (1950). If an imitator can circumvent an existing patent by making mere technical, insubstantial changes to the patented

invention and so avoid the literal scope of the patent claims, patent protection can be rendered meaningless. The doctrine of equivalents affords patentees a remedy against the infringer who has avoided literal infringement only by making insubstantial changes to elements of the claimed invention.

A. The doctrine of equivalents is properly invoked only upon a showing that the differences between the accused device and the patent claims are insubstantial, and that equitable considerations would not preclude a finding of infringement under the doctrine. Important indicators of insubstantiality include, but are not limited to, whether the accused product or process performs substantially the same function in substantially the same way to obtain the same result. The insubstantiality inquiry must be undertaken, not by comparing the accused and the claimed inventions as a whole, but on an element-by-element basis with reference to each limitation in the patent claims. An accused invention need not be sufficiently novel or nonobvious to itself be patentable in order for it to be found to differ substantially from the claimed invention. If the interchangeability of a substituted element with a claimed element is evident to persons of skill in the relevant art, that fact will support a finding of insubstantiality. Insubstantiality does not turn on the state of mind of the alleged infringer, but is an objective inquiry.

B. If an accused device employs substitutions that differ insubstantially from those specified by the patent claim's limitations, it nonetheless may not be found to infringe if such a finding would be inequitable in light of the policies of the Patent Act. Where, for example, a patentee included a limitation in its claims to steer clear of prior art, the doctrine of equivalents cannot be employed to capture the surrendered turf. A patentee

will not necessarily be estopped, however, from claiming infringement by equivalents where it tailored claim language for other reasons, such as to add precision or to comport with the patent specification's explanation of the invention.

C. Section 112 ¶ 6 of the Patent Act, permitting means-plus-function claiming, did not displace the doctrine of equivalents. That paragraph permits patentees to claim a means for performing a function, rather than a particular product or process; such claims are limited, however, by the requirement that the means perform exactly the specified function. Paragraph 6 was added to the Act in 1952 not, as petitioner asserts, to codify or displace the doctrine of equivalents, but to statutorily overrule *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946), which held that means-plus-function language could not be employed at the exact point of novelty in a combination claim. Indeed, there are important areas in which means-plus-function claiming cannot effectively be employed to protect against infringement by insubstantial equivalents.

D. Similarly, the doctrine of equivalents does not conflict with or displace the statutory provisions for patent reissue, 35 U.S.C. 251-252. Under those provisions, a patent that is inoperative or invalid in whole or in part may be reissued in order to correct the specification, or to broaden or narrow the patent's claims to bring them into line with the scope of the specification. The doctrine of equivalents fulfills a different function, focusing not on changing the claims to bring them into line with the specification, but on ensuring that the claims in substance, and not only in form, are enforced. The doctrine of equivalents should not be employed as an extra-statutory means to accomplish reissue without complying

with the reissue procedures and limitations set forth in the Patent Act.

ARGUMENT

The Patent Clause of the Constitution authorizes Congress "[t]o Promote the Progress of Science and useful Arts, by securing for limited Times to * * * Inventors the exclusive Right to their * * * Discoveries." U.S. Const. Art. I, § 8, Cl. 8. In implementing the constitutional mandate in the Patent Act, Congress has granted inventors the exclusive right to practice their inventions for a period of years in exchange for public disclosure of those inventions. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-151 (1989). The patent system balances competing concerns. It grants a temporary right to exclude others from making, using and selling a novel and useful invention while also seeking to foster further competition in innovation. The grant of a patent encourages innovation and disclosure of useful knowledge because patent holders can make their inventions public without thereby losing the inventions' commercial value. Patents also encourage further innovation because, as a condition of obtaining a patent, the inventor must describe the invention with enough specificity that the public is taught how to make and use it as a "building block" for new inventions. *Id.* at 151.

Thus, to serve the patent system's goals, a patent must provide meaningful protection for the disclosed invention, or inventors will choose to keep their inventions secret and impede the flow of new knowledge. See *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 607 (1950). But the patent must provide meaningful protection for the public as well. It must give notice of the nature and limits of the exclusive

rights it creates with sufficient clarity that other inventors will know what they may safely use and build upon, and the public will know the extent of the art that can be used without infringement and be able to practice the patented invention when the patent expires.

To those ends, Congress has specified the conditions that must be met to warrant the grant of a patent. First, a patent may be granted only to one who invents or discovers a new and useful product or process. 35 U.S.C. 101. Second, a patent grant is prohibited if the alleged invention is already in the public domain. 35 U.S.C. 102. Third, the subject matter of the patent must not have been obvious to those skilled in the art. 35 U.S.C. 103. The statute also requires specific claiming: The claims to the product or process must "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. 112 ¶ 2. The specification must be "in such full, clear, concise, and exact terms" as to enable a person skilled in the art to make and use the patented product or process. 35 U.S.C. 112 ¶ 1.

The doctrine of equivalents can play a useful role in ensuring that the balance struck in the Patent Act is not subverted by meaningless formalism. As the Court observed in *Graver Tank*, "[o]utright and forthright duplication is a dull and very rare type of infringement." 339 U.S. at 607. Patentees should be protected against imitations that involve only colorable or trivial deviation from the literal terms of the patent claims, and not placed "at the mercy of verbalism." *Ibid.* The doctrine of equivalents must also, however, not be defined or applied so broadly that it undermines the basic functions of patent claims: clearly to define and limit the scope of the exclusionary rights they confer, and to give the public fair notice of what the patentee owns and what

remains in the public domain. If the doctrine of equivalents is properly limited, retaining the Patent Act's primary focus on the patent claims, the doctrine can continue to serve a valid and useful function consistent with the Act.²

**A CLEARLY DEFINED DOCTRINE OF EQUIVALENTS
SERVES THE GOALS OF THE PATENT ACT**

As the Court stated in *Graver Tank*, the theory on which the doctrine of equivalents is founded is that, "if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape." 339 U.S. at 608 (quoting *Machine Co. v. Murphy*, 97 U.S. 120, 125 (1877)). That statement should not, however, be understood to invite a direct comparison of the patented *device* to the accused device; rather, the focus should be on whether the elements of the accused device are the same as the elements set forth in the patent *claims*. "Technically, the doctrine of equivalents does not expand the coverage of the claims, it just expands the patent holder's right to exclude 'equivalents' of what is claimed." Sean Moorhead, *The Doctrine of Equivalents: Rarely Actionable Non-Literal Infringement*

² In our brief amicus curiae in this Court in *Standard Industries, Inc. v. Tigrett Industries, Inc.*, 397 U.S. 586 (1970) (No. 445) (O.T. 1969) (aff'g by an equally divided Court 411 F.2d 1218 (6th Cir. 1969)), the United States opposed use of the doctrine of equivalents to expand the scope of express patent claims (while advocating a narrower approach to afford protection against merely colorable or trivial deviation from the claims). The United States continues to believe that patent claims must be the primary focus of any determination whether infringement occurs, see pages 16-18, *infra*, but we believe that, if properly confined, a doctrine of equivalents that seeks to give effect to patent claims by reaching only insubstantial deviations from literal claim terms is consistent with that purpose.

of the Second Prong of Patent Infringement Charges?, 53 Ohio St. L.J. 1421, 1424 (1992). "To say that the doctrine of equivalents extends or enlarges *the claims* is a contradiction in terms. The claims—i.e., the scope of patent protection *as defined by* the claims—remain the same and application of the doctrine *expands the right to exclude* to 'equivalents' of what is claimed." *Wilson Sporting Goods Co. v. David Geoffrey & Associates*, 904 F.2d 677, 684 (Fed. Cir.), cert. denied, 498 U.S. 992 (1990).

In our view, a patent owner may establish infringement under the doctrine of equivalents upon a showing (1) that the differences between the accused device and the patent claims are insubstantial, and (2) that there are no equitable considerations that would preclude a finding of infringement under the doctrine. This test serves the doctrine's purpose of preventing the impairment of existing patent protection through making "unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law." *Graver Tank*, 339 U.S. at 607. It also confines the doctrine to circumstances that are predictable from the standpoint of the potential infringer. The test should be applied only "when the proper circumstances for its application arise," *id.* at 608; in particular, it should be interpreted consistently with the requirement of specific claiming and other limitations imposed by the Patent Act. For example, equity weighs against allowing a patentee, through the doctrine of equivalents, to recapture claim scope the patentee sur-

rendered in order to avoid prior art and obtain the patent.³

A. The Doctrine Of Equivalents Applies Only Where Each Element Claimed In The Patent, Or A Substitute For Each Element That Differs Only Insubstantially From A Claimed Element, Is Present In The Allegedly Infringing Device

We agree with the court of appeals' basic approach to determining whether differences between a claimed and accused device are insubstantial. See Pet. App. 6a-11a. As that court held, "the application of the doctrine of equivalents rests on the substantiality of the differences between the claimed and accused products or processes, assessed according to an objective standard." *Id.* at 9a. Analysis of insubstantiality should look to what is known as the "function-way-result test," i.e., whether the accused device "performs substantially the same function in substantially the same way to obtain the same result." *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42 (1929) (quoted in *Graver Tank*, 339 U.S. at 608); see Pet. App. 9a. That test is not, however, the exclusive test of equivalency. A court should consider "all evidence relevant to the substantiality of the differences." *Id.* at 10a.

³ This Court's decision in *Markman v. Westview Instruments, Inc.*, cert. granted, 116 S. Ct. 40 (1995) (No. 95-26), will shed light on, if not determine, the question much mooted in the court of appeals regarding the proper roles of the jury and the trial judge in the application of the doctrine of equivalents. Although the Court's decision in *Markman* might, of course, change our view, we are inclined to believe that reference of the entire issue to the jury in this case was erroneous because insubstantiality is, in essence, a matter of claim interpretation, and it involves an equitable extension of infringement remedies to equivalents. See generally Pet. App. 63a-69a (Plager, J., dissenting); *id.* at 79a-81a (Lourie, J., dissenting); *id.* at 82a (Nies, J., dissenting).

The insubstantiality inquiry must be applied on an element-by-element basis. See *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1259 (Fed. Cir. 1989) ("An equivalent must be found for every limitation of the claim somewhere in an accused device"); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 935 (Fed. Cir. 1987) (en banc), cert. denied, 485 U.S. 961, 1009 (1988); *id.* at 949-954 (additional views of Nies, J.); *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985) ("It is * * * well settled that each element of a claim is material and essential, and that in order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device."). Under the element-by-element requirement, however, one element in an accused device may be the equivalent of more than one element in a claim, and, similarly, a single claimed element may be met by more than one element in the accused device. See *Corning Glass Works*, 868 F.2d at 1259; *Royal Typewriter Co. v. Remington Rand, Inc.*, 168 F.2d 691, 693 (2d Cir.), cert. denied, 335 U.S. 825 (1948).

The element-by-element requirement under the doctrine of equivalents mirrors the requirement that a patentee establishing literal infringement must demonstrate that every limitation of the disputed claim is found in the accused device. See *Pall Corp v. Micron Separations, Inc.*, 66 F.3d 1211, 1217 (Fed. Cir. 1995); *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1539 (Fed. Cir. 1991). Under equivalency analysis, as under literal infringement, the claimed matter must remain the touchstone for a determination of infringement. See *Corning Glass Works*, 868 F.2d at 1259 ("In the All Elements

rule, 'element' is used in the sense of a limitation of a claim.") (emphasis omitted).⁴

The key question in applying the doctrine of equivalents is whether the differences between the elements of the claimed device and the elements of the accused device are insubstantial. The test of insubstantiality, while easily stated, is difficult to define with specificity. Two considerations may, however, help to define that inquiry. First, an accused device need not be independently patentable in order for it to be found to be substantially different from the claimed device. Thus, an accused device may be found to have more than insubstantial differences from the patented device even though the accused device is not considered to be novel or nonobvious as required for patentability under the Act. See 35 U.S.C. 102, 103.

Second, the fact that the interchangeability of a substituted element for a claimed element would have been known to one skilled in the relevant art at the time of alleged infringement is a useful indicator of insubstantiality. It ensures that the doctrine operates consistently with the statutory policy that members of the public, such as competitors seeking to make further advances in the field, be on notice of activities that infringe. If persons of skill in the relevant art would have found it evident that an equivalent substitution could be made for an element of the claimed invention, the extent to which the substitution diverges from the claimed element is

⁴ Insubstantiality, however, necessarily depends on the context—an inquiry that requires the court to take into account the overall function of the accused device. Substitution of a digestible acid for a non-digestible one in a metal polish might, for example, be an insubstantial change, whereas such an acid substitution in a citrus soft drink might well be found to be substantial.

likely insubstantial. See *Graver Tank*, 339 U.S. at 609, 612. Expert witness testimony on that subject can thus be useful in determining insubstantiality.⁵

In our view, the subjective state of mind of the alleged infringer is not relevant to infringement by equivalents. We recognize that *Graver Tank* explained the purpose of the doctrine of equivalents as avoiding "fraud," "piracy" and "stealing" of patented inventions, and that some have understood those references to invite inquiry into the alleged infringer's subjective bad faith or intent. See Pet. App. 75a-78a (Lourie, J., dissenting). Petitioner similarly would limit the doctrine to "bad faith 'copying.'" Pet. 29-30. Literal infringement, however, does not turn on intent, see 35 U.S.C. 271; *Intel Corp. v. United States Int'l Trade Comm'n*, 946 F.2d 821, 832 (Fed. Cir. 1991), and we submit that the same rule—an objective standard—should apply to infringement by equivalents.⁶

From the perspective of the statutory policy of protecting the claimed invention, a device that has the same or equivalent elements as the claimed invention, and fulfills the same function in the same way to achieve the same result, is equally harmful to patent rights whether the equivalency was intended or not. The statutory policy of patent protection does not provide any basis for distinguishing between, for example, an

⁵ Unlike obviousness affecting validity under Section 103, the focus in determining equivalency is not on the time of application, but on the time of infringement. Moreover, the equivalency inquiry looks not to the obviousness of the allegedly infringing device as a whole, but to the obviousness of the substitution, in view of the prior art on the substitute at the time of the substitution.

⁶ As the court of appeals correctly noted, however, the willfulness of an infringement may properly affect the availability of damages and attorneys' fees. Pet. App. 12a, 20a; see 35 U.S.C. 284-285.

effort to "design around" and legitimately build upon a patented invention that ultimately fails to steer clear of the claims, and an outright effort to copy a patented invention. Moreover, if intent were determinative, a device developed with knowledge of the patent could be held to be infringing, while the very same device independently developed by one ignorant of the patent would be non-infringing. Such a result would ill serve the Patent Act's policy of providing uniform and predictable protection for a claimed invention. Thus, the fact that petitioner in this case developed the ultra-filtration process independently of respondent's process, without knowledge of the patent or any bad-faith effort to replicate it, should not be material to the application of the doctrine.

B. The Doctrine Of Equivalents Does Not Apply Where It Would Yield Inequitable Results

Even if an accused device employs substitutions that, as an objective matter, differ only insubstantially from the elements specified in the claim limitations, infringement under the doctrine of equivalents should not be found where it would be inequitable in view of the policies of the Patent Act.

The principal circumstance in which the doctrine of equivalents should not be available to a patentee is where the patentee seeks to use the doctrine to obtain what he was required, as a condition of patentability, to surrender during prosecution of the patent. This limitation on the doctrine is known as prosecution history estoppel (or file wrapper estoppel). It prevents a patentee from obtaining, through the doctrine of equivalents, protection that he could not have obtained, or that he refrained from obtaining, from the PTO at the time the patent was issued. However, as the court correctly noted in *Insta-Foam*

Products, Inc. v. Universal Foam Systems, Inc., 906 F.2d 698, 703 (Fed. Cir. 1990), "[w]hen prosecution history estoppel is invoked as a limitation to infringement under the doctrine of equivalents, 'a close examination must be made as to, not only what was surrendered, but also the reason for such a surrender.'"

A common reason that limitations are added to claims during claim prosecution is to steer clear of prior art; the doctrine of equivalents cannot then be applied to recapture prior art that, had it not been surrendered, would have defeated the patent *ab initio*. "[S]ince prior art always limits what an inventor could have claimed, it limits the range of permissible equivalents." *Wilson Sporting Goods*, 904 F.2d at 684. Respondent in this case could not, for example, assert infringement by equivalents against an accused device operating at a pH greater than 9.0, because respondent surrendered the higher pH range during prosecution of its claim in order to avoid the prior art described in the Booth patent. A patentee should not be permitted to take inconsistent positions in the PTO and before the court regarding the scope of the prior art. Moreover, the rights of the public to utilize non-patented technology should not be foreclosed by the inability to prove directly (by reference to amendments made before the PTO) that the patentee drafted its claims to avoid prior art. If, in light of the prior art, a substantially different question would have been presented to the PTO in the issuance proceedings if the claims had literally extended to the allegedly infringing device, then it cannot be said that the public was on sufficient notice that the patent that was issued would extend to that device. See Brief for the United States as Amicus Curiae at 15-17, *Standard Industries, Inc. v. Tigrett Industries, Inc.*, 397 U.S. 586 (1970) (No. 445) (O.T. 1969).

As the lower-end pH limitation in this case illustrates, not every limitation added during prosecution of a patent is added to avoid prior art. Estoppel will not necessarily apply based on prosecution history showing that claim language was used or changed for reasons other than avoidance of prior art. In this case, there apparently was no prior art on ultrafiltration at pHs less than 6.0. The court of appeals did not identify why respondent surrendered pHs lower than 6.0. Pet. App. 24a. Judge Plager in dissent, however, pointed to the trial testimony of respondent's inventor, Dr. Cook, that "though the [claimed ultrafiltration] process would work to separate the dye from the impurities at pH-values as low as 2.0, a solution with a pH below 6.0 would cause 'tremendous foaming problems in the plant.'" *Id.* at 62a. Thus, it appears that the claims may have been limited to what was "enabled" as of the date of the patent application—*i.e.*, to what could be described in sufficient detail to enable a person of ordinary skill in the art to practice it. See 35 U.S.C. 112 ¶ 1.

Amendments before the PTO to reflect the scope of what was enabled or to add specificity raise considerations different from those raised by amendments to avoid prior art. The purpose of the enablement requirement is not to limit the scope of the patent right, but to ensure that the invention has been fully disclosed so that, upon the patent's expiration, the public can practice the invention. Similarly, "when claim changes or arguments are made in order to more particularly point out the applicant's invention, the purpose is to impart precision, not to overcome prior art. Such prosecution is not presumed to raise an estoppel, but is reviewed on its facts, with the guidance of precedent." *Pall Corp.*, 66 F.3d at 1220 (collecting cases). In order to be sufficiently specific, a patent need not be a catalogue of all existing

technology; "a patent need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987). Thus, it may be appropriate for a patentee not to specify or to claim all known equivalents, and a failure to do so should not necessarily estop it from obtaining protection under the doctrine of equivalents.⁷ In sum, "[t]here is no all-encompassing rule that estoppel results from all claim changes, or all arguments, whatever their cause or purpose." *Pall Corp.*, 66 F.3d at 1220.

C. Section 112 ¶ 6 Of The Patent Act, Permitting Means-Plus-Function Claiming, Did Not Displace The Doctrine Of Equivalents

Petitioner argues that 35 U.S.C. 112 ¶ 6 codifies the doctrine of equivalents. Pet. 25. Paragraph 6 provides:

An element in a claim for a combination may be expressed as a means or step for performing a speci-

⁷ Of course, when an accused equivalent (meeting the objective standard of insubstantiality) could not have been known because it was developed or discovered only after the patent issued, the case for application of the doctrine of equivalents becomes especially clear. For example, a claim to a chemical composition might include an inactive filler as a minor, unimportant ingredient. After the patent issues, a competitor of the patentee might manufacture a composition exactly as claimed but use a different, inactive filler, unknown in the art at the time the patent application was filed, that performs exactly as those literally covered by the claim. Such a substitution, once it became available, might be known to persons of skill in the relevant art to be interchangeable with the claimed filler, and yet it would not have been possible to include the accused element in the patent because it did not exist at the time of issue. See Martin Adelman & Gary Francione, *The Doctrine of Equivalents in Patent Law: Questions that Pennwalt Did Not Answer*, 137 U. Pa. L. Rev. 673, 707-708, 712-715 (1989) (endorsing legitimacy of doctrine of equivalents to capture equivalents generated by new technology).

fied function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Claims written in this format are known as "means-plus-function" claims. See, e.g., *In re Donaldson Co.*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) (en banc). Using means-plus-function claiming, a patentee may broadly claim a means for performing a function, rather than a particular product or process. The PTO and the courts, in determining the limits of the claim scope, will then refer to the structure described in the patent specification (and to equivalents thereof). *Id.* at 1195; *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1042 (Fed. Cir. 1993) (second clause of paragraph 6 "confines the breadth of protection otherwise permitted by the first clause" limiting the applicant to "the structure, material, or acts in the specification and their equivalents").

Contrary to petitioner's assertions, the doctrine of equivalents was not codified in the Patent Act of 1952. See, e.g., *Pennwalt*, 833 F.2d at 933-934; *Valmont Indus.*, 983 F.2d at 1042-1043; *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1575 (Fed. Cir. 1985). This Court in *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 342 (1961), stated that the provisions defining infringement in the new Patent Act "left intact the entire body of case law on direct infringement." That body of case law included *Graver Tank*—the case said to establish the modern doctrine of equivalents—and its progenitors. As far as we are aware, there are no contemporaneous indications that Congress intended to codify the doctrine of equivalents, or to overrule *Graver Tank*. See generally

P.J. Federico, *Commentary on the New Patent Act*, 35 U.S.C.A. 1, 24-26 (West 1954).

As the Federal Circuit has explained, "[t]he record is clear on why paragraph six was enacted. In *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946), the Supreme Court held that means-plus-function language could not be employed at the exact point of novelty in a combination claim. Congress enacted paragraph six, originally paragraph three, to statutorily overrule that holding." *In re Donaldson*, 16 F.3d at 1194 (parallel citations omitted). "The doctrine of equivalents has a different purpose and application than section 112." *Valmont Indus.*, 983 F.2d at 1043. Whereas Section 112 ¶ 6 provides guidance for interpreting claims phrased in means-plus-function language, the doctrine of equivalents "prevents a copyist from evading patent claims with insubstantial changes." *Ibid.*

There are specific reasons why Section 112 ¶ 6 cannot satisfactorily fill the role of the doctrine of equivalents. For example, means-plus-function claiming will not always have been used where it might, in hindsight, have proved useful to protect a patented invention. Indeed, means-plus-function claiming is particularly inadequate for ensuring the protection of chemical and biotechnological inventions. The elements of a given chemical are generally so numerous, and their properties so varied and, in many cases, not fully known, that it is difficult to anticipate at the time of patent application precisely how means-plus-function claims might usefully be framed. Instead, because chemical inventions are susceptible of precise chemical definition, a chemical patent will typically be claimed using a generic formula. Yet, if conventional claiming is used, a new chemical may be made or a substitute discovered that is structurally different from the patented chemical, but, for purposes of the

invention, does not operate any differently (or only insignificantly so). In that case, the claim will not be literally infringed so, in the absence of a doctrine of equivalents, the patent will be evaded. The doctrine of equivalents can serve to protect the patent in such circumstances.

Hence, petitioner's suggestion that Section 112 ¶ 6 codifies the doctrine of equivalents, precluding judicial application of the doctrine beyond that paragraph, should be rejected.

D. The Doctrine Of Equivalents Does Not Conflict With Sections 251-252, The Patent Act's Reissue Provisions

The presence in the Patent Act of Sections 251-252, authorizing patent reissue, also does not, contrary to petitioner's contention (Pet. 26; see also Pet. App. 103a-104a (Nies, J., dissenting)), conflict with or negate the utility of the doctrine of equivalents. Reissue of a patent that is wholly or partly inoperative or invalid is statutorily authorized to correct "a defective specification or drawing," or to broaden or narrow the patent claims when, in view of the specification, the patentee claimed "more or less than he had a right to claim in the patent." 35 U.S.C. 251. The reissue provision states that "[n]o new matter shall be introduced into the application for reissue." *Ibid.* By "new matter" the statute refers to additions to the abstract, specifications or drawings that disclose the invention. Cf. 35 U.S.C. 132 ("No amendment shall introduce new matter into the disclosure of the invention."). The scope of the claims in the reissued patent may be broader than the scope of the claims in the original patent only if the reissue is applied for within two years of the grant of the original patent (but even

then may not exceed the scope of the specification). 35 U.S.C. 251.

Sections 251-252 fulfill a function distinct from that of the doctrine of equivalents. Reissue focuses on the specification—allowing it to be corrected, and the claims conformed to it. The doctrine of equivalents, in contrast, focuses on the existing claims themselves, and seeks to ensure that they are given full substantive effect. Unlike reissue, the doctrine of equivalents is not, for example, a method of expanding claims to conform to the specification. Rather, it simply authorizes a determination of infringement where the elements of the accused device differ only insubstantially from the elements claimed. Under a properly defined doctrine of equivalents, the existing claims remain the touchstone, and are not, in effect, judicially reissued, or set aside in favor of an overall equivalency inquiry focused on the scope of the invention disclosed in the specification. Of course, it would be a misapplication of the doctrine of equivalents to use it as an extra-statutory means to accomplish the same result as reissuance without following the statutorily prescribed reissuance procedure.

CONCLUSION

The judgment of the court of appeals should be vacated, and the case remanded to the court of appeals for further proceedings consistent with the foregoing analysis.⁸

Respectfully submitted.

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⁸ See also page 16 note 3, *supra*.